Space Weather Forecast

Issued on Saturday, 25 May 2024 at 12:23 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of Moderate flares throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate with one Moderate flare at 24/2025 UTC from a sunspot region on the southwest limb that has now rotated on the far-side. This leaves six numbered regions on the disc. The majority of these are simple and stable, with the main focus now on a new region in the northwest. This is perhaps the lead portion of a returning very active sunspot region on the previous rotation, and it remains to be seen if further spots will follow. Due to the proximity to the limb, the region is difficult to assess, but is moderately sized and with some complexity, albeit appearing rather ragged.

No Earth-directed CMEs (coronal mass ejections) were observed.

Solar Wind / Geomagnetic Activity: Background to slightly elevated solar winds have been observed, perhaps due to a very slight coronal hole enhancement, however this is low confidence. Solar wind speeds remained background to slightly elevated speeds. Interplanetary Magnetic Field (IMF) was mostly weak, but briefly Moderate 24/2145-25/0200 UTC. North-south component remained weak, and most frequently positive (northward). Geomagnetic activity was Quiet (Kp 0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Isolated M-flares remain likely each day, perhaps from AR3679 over the limb day 1 (25 May), but with the main risk transferring to new sunspot AR3691 in the northeast. The return of hyperactive ex-AR3664 is also expected later in the period, maintaining this flare risk.

Solar Wind / Geomagnetic Activity: A weak CME glance is possible days 2-3 (26-27 May), although confidence is low. This is due to an eruption from the southeast disc on 23 May. Weak coronal hole influences are possible, most likely day 3 (27 May). Otherwise mainly background slow wind conditions are anticipated. Geomagnetic activity is forecast to be mainly Quiet, but perhaps increasing to Unsettled with a chance of Active intervals with any CME or fast wind arrival. There is a slight chance of a G1 Minor Storm interval.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to persist at background, with only a very slight chance of solar radiation storms occurring.

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Met Office

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	5	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	50	50	50	50
Very Active	R3 to R5 X	No	5	5	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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